

19th IAA SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND
DEVELOPMENT (D3)

Interactive Presentations - 19th IAA SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE
EXPLORATION AND DEVELOPMENT (IP)

Author: Mr. Koen Kegel
Nexus Aurora, The Netherlands

Mr. Sean Wessels
South Africa

Mr. Szymon Matkowski
Nexus Aurora, Poland

Mr. Sam Ross
University of Cambridge, United Kingdom

Mr. enrico trolese
United Kingdom

Mr. Michel Lamontagne
Canada

ORBITAL CAN STATION

Abstract

With the advent of new low-cost super heavy lift launch systems, many have begun to recognize the economic potential of medium-sized space stations in low Earth orbit. This paper lays out a design for realising this potential, in the form of a low-cost, standardised architecture of station modules designed to form the basis of orbital development for the next decade. The Orbital Can Station leverages simple manufacturing techniques and commercial off-the-shelf components, to create a versatile pressurised volume which customers can outfit appropriately for their application with minimal modifications required.

This paper lays out technical detail for two standard sizes of module —with volumes of 150 and 550 cubic metres— along with a range of standard subsystems including thermal management, power, environmental control, life support, and payload storage. All of these systems have been designed with future expandability in mind, allowing the Orbital Can Station to mitigate obsolescence and provide logistics support to both near-term monolithic volumes and longer-term development of large modular space stations.